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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,861	11/26/2003	John M. Sabol	144175XZ/YOD GEMS:0261	9690

7590 10/09/2007	EXAMINER
Patrick S. Yoder FLETCHER YODER P.O. Box 692289 Hoston, TX 77269-2289	TABATABAI, ABOLFAZL

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/723,861	SABOL ET AL.
	Examiner	Art Unit	
	Abolfazl Tabatabai	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on <u>06 August 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-39</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-39</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>26 November 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)   **Office Action Summary**   Part of Paper No./Mail Date 20070926

Response to Amendment/Arguments

1.   Applicant's arguments, (pages 9-18), filed on August 6, 2007 with respect to the

rejection of claims 1-8, 14, 25, 30 and 35 under Taguchi et al (U. S. 5,807,256) in view

of Kao et al (U. S. 5,361,763); claims 9-13, 15-24, 26-29 and 36-39 have been fully

considered and are persuasive. Therefore, the rejection has been withdrawn. However,

upon further consideration, a new ground(s) of rejection is made in view Taguchi et al

(U. S. 5,807,256) in view of Carrott et al (U. S. 6,909,792 B1).

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

3.   Claims 1-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Taguchi et al (U. S. 5,807,256) in view of Carrott et al (U. S. 6,909,792 B1).

Regarding claim 1, Taguchi discloses a method for analyzing image data

comprising:

analyzing the temporal change image (please note, to column 45, lines 51-65

and column 54, lines 27-37) via at least one CAD algorithm (please note, to column 54,

lines 27-37 and column 81, lines 25-41).

However, Taguchi is silent about the specific details regarding the step of:

generating a temporal change image based upon first and second images from

different times by segmenting the first and second images and registering at least a

portion of the segmented images with one another.

In the same field (medical imaging) endeavor, however, Carrott discloses historical

comparison of breast tissue by image processing comprising the step of:

generating a temporal change image based upon first and second images from

different times by segmenting the first and second images (please note, to column 4,

lines 33-53) and registering (please note, to column 2, lines 9-14) at least a portion of

the segmented images with one another (please note, to column 14, lines 24-26).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to use generating a temporal change image as taught Carrott in the

system of Taguchi because Carrott provides Taguchi an improved method and system

which visually documents historical changes in a medical image by processing and

comparing historical with later images. A composite image is created which visually

emphasizes the temporal differences between historical images.

Regarding claim 2, Taguchi discloses the method of claim 1, wherein analyzing

the temporal change image via the CAD algorithm includes diagnosing a physical

condition of a patient (please note, to column 45, lines 51-65 and column 115, lines 34-

40).

Regarding claim 3, Taguchi discloses the method of claim 1, wherein the CAD

algorithm identifies at least one feature of interest in the temporal change image (please

note, to column 5, lines 17-25 and column 45, lines 62-67).

Regarding claim 4, Taguchi discloses the method of claim 1, comprising

performing quantitative analysis on the temporal change image (please note, to column

56, lines 25-30).

Regarding claim 5, Taguchi discloses the method of claim 4, wherein the

quantitative analysis includes determining a change in size of a feature of interest

between the first and second images based upon the temporal change image (please

note, to column 115, lines 18-27).

Regarding claim 6, Taguchi discloses the method of claim 1, comprising

presenting a report to a user along with at least one of the first image, the second image

and the temporal change image (please note, to column 13, lines 30-35 and column 67,

lines 25-31).

Regarding claim 7, Taguchi discloses the method of claim 1, wherein the first

and second images are generated by different imaging modalities (please note, to

column 2, lines 47-52 and column 106, lines 18-23).

Regarding claim 8, Taguchi discloses the method of claim 1, comprising analyzing at least the first image via a second CAD algorithm (please note, to column 64, lines 60-65 and column 81, lines 25-41).

Regarding claim 9, Taguchi discloses a method for analyzing image data comprising:

analyzing a first image via at least one CAD algorithm to identify a feature of interest image (please note, to column 54, lines 27-37 and column 81, lines 25-41); and, if a feature of interest is identified in the first image, accessing a second image from a different time than the first image (please note, to column 6, lines 50-62 and column 81, lines 25-41).

However, Taguchi is silent about the specific details regarding the step of:

generating a temporal change image based upon the first and second images.

In the same field (medical imaging) endeavor, however, Carrott discloses historical comparison of breast tissue by image processing comprising the step of:

generating a temporal change image based upon the first and second images (please note, to column 4, lines 33-53).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use generating a temporal change image as taught Carrott in the system of Taguchi because Carrott provides Taguchi an improved method and system which visually documents historical changes in a medical image by processing and comparing historical with later images. A composite image is created which visually emphasizes the temporal differences between historical images.

Regarding claim 10, Taguchi discloses the method of claim 9, comprising reporting results of the analysis to a user if a feature of interest is not identified in the first image (please note, to column 13, lines 30-35 and column 67, lines 50-58).

Regarding claim 11, Taguchi discloses the method of claim 9, comprising analyzing the temporal change image via a second CAD algorithm (please note, to column 64, lines 60-65).

Regarding claim 12, Taguchi discloses the method of claim 11, wherein the CAD algorithm used for analyzing the first image is different from the CAD algorithm used for analyzing the temporal change image (please note, to column 64, lines 60-65 and column 81, lines 25-41).

Regarding claim 13, Taguchi discloses the method of claim 12, wherein the CAD algorithm used for analyzing the first image has a sensitivity and a specificity to produce a desired level of positive identifications of potential features of interest (please note, to column 83, lines 6-12), and wherein the CAD algorithm used for analyzing the temporal change image is configured to reduce the positive identifications of features of interest (please note, to column 17, lines 10-27).

Claim 14 is similarly analyzed as claim 1 above.

Claim 15 is similarly analyzed as claim 4 above.

Claim 16 is similarly analyzed as claim 5 above.

Claim 17 is similarly analyzed as claim 6 above.

Regarding claim 18, Taguchi discloses a method for analyzing image data comprising:

analyzing first and second images from two different times via at least one CAD algorithm to identify a feature of interest (please note, to column 54, lines 27-37 and column 81, lines 25-41);

comparing the results of the analyses (please note, to column 7, lines 14-18). However, Taguchi is silent about the specific details regarding the step of:

generating a temporal change image based upon the comparison.

In the same field (medical imaging) endeavor, however, Carrott discloses historical comparison of breast tissue by image processing comprising the step of:

generating a temporal change image based upon the comparison (please note, to column 4, lines 33-53).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use generating a temporal change image as taught Carrott in the system of Taguchi because Carrott provides Taguchi an improved method and system which visually documents historical changes in a medical image by processing and comparing historical with later images. A composite image is created which visually emphasizes the temporal differences between historical images.

Regarding claim 19, Taguchi discloses the method of claim 18, comprising analyzing the temporal change image via CAD algorithm to diagnose a physical condition of a patient (please note, to column 115, lines 34-40).

Claim 20 is similarly analyzed as claim 9 above.

Regarding claim 21, Taguchi discloses the method of claim 18, comprising determining whether a discrepancy exists between the analyses of the fist and second

images, and wherein the temporal change image is generated only if such a

discrepancy is identified (please note, to column 5, lines 51-61 and column 35, lines 7-

10).

Claim 22 is similarly analyzed as claim 18 above.

Regarding claim 23, Taguchi discloses the method of claim 22, comprising

receiving results of a read of at least one of the first and second images by a human

reader, and wherein the reconciler identifies differences between the analyses of the

first and second images and the results of the read by the human reader (please note,

to column 24, lines 36-39).

Claim 24 is similarly analyzed as claim 9 above.

Claim 25 is similarly analyzed as claim 1 above.

Regarding claim 26, Taguchi discloses the method of claim 24, wherein the CAD

algorithm used for analyzing the first image is different from the CAD algorithm used for

analyzing the second image (please note, to column 81, lines 50-53).

Regarding claim 27, Taguchi discloses the method of claim 24; comprising

comparing results from the analyses of the first and second images during multiple

stages of analysis via the CAD algorithm (please note, to column 7, lines 14-18).

Claim 28 is similarly analyzed as claim 9 above.

Regarding claim 29, Taguchi discloses the method of claim 28, wherein

analyzing the first and second images includes quantifying a change in a feature of

interest between the first image and the second image (please note, to column 56, lines

25-30).

Claim 30 is similarly analyzed as claim 1 above.

Claim 31 is similarly analyzed as claim 9 above.

Claim 32 is similarly analyzed as claim 18 above.

Claim 33 is similarly analyzed as claim 24 above.

Claim 34 is similarly analyzed as claim 28 above.

Regarding claim 35, Taguchi discloses a computer readable medium embodied

with a computer program for analyzing image data comprising:

code stored on the at least one machine-readable medium (please note, to

column 101, lines 9-15); for analyzing the temporal change image (please note, to

column 45, lines 51-65 and column 54, lines 27-37) via at least one CAD algorithm

(please note, to column 54, lines 27-37 and column 81, lines 25-41).

However, Taguchi is silent about the specific details regarding the step of:

generating a temporal change image based upon first and second images from

different times by segmenting the first and second images and registering at least a

portion of the segmented images with one another.

In the same field (medical imaging) endeavor, however, Carrott discloses historical

comparison of breast tissue by image processing comprising the step of:

generating a temporal change image based upon first and second images from

different times by segmenting the first and second images (please note, to column 4,

lines 33-53) and registering (please note, to column 2, lines 9-14) at least a portion of

the segmented images with one another (please note, to column 14, lines 24-26).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use generating a temporal change image as taught Carrott in the system of Taguchi because Carrott provides Taguchi an improved method and system which visually documents historical changes in a medical image by processing and comparing historical with later images. A composite image is created which visually emphasizes the temporal differences between historical images.

Regarding claim 36, Taguchi discloses a computer-readable medium embodied with a computer program for analyzing image data comprising:

code stored on the at least one machine readable medium (please note, to column 101, lines 9-15); for analyzing a first image via at least one CAD algorithm to identify a feature of interest (please note, to column 45, lines 51-65 and column 54, lines 27-37), and if a feature of interest is identified in the first image, accessing a second image from a different time than the first image (please note, to column 6, lines 50-62 and column 81, lines 25-41).

However, Taguchi is silent about the specific details regarding the step of:

generating a temporal change image based upon the first and second images.
In the same field (medical imaging) endeavor, however, Carrott discloses historical comparison of breast tissue by image processing comprising the step of:

generating a temporal change image based upon the first and second images (please note, to column 4, lines 33-53).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use generating a temporal change image as taught Carrott in the

system of Taguchi because Carrott provides Taguchi an improved method and system which visually documents historical changes in a medical image by processing and comparing historical with later images. A composite image is created which visually emphasizes the temporal differences between historical images.

Regarding claim 37, Taguchi discloses a computer-readable medium embodied with a computer program for analyzing image data comprising:

code stored on the computer-readable medium (please note, to column 101, lines 9-15) for analyzing first and second images from two different times via at least one CAD algorithm to identify a feature of interest (please note, to column 54, lines 27-37 and column 81, lines 25-41), comparing the results of the analyses (please note, to column 7, lines 14-18).

However, Taguchi is silent about the specific details regarding the step of:

generating a temporal change image based upon the comparison.

In the same field (medical imaging) endeavor, however, Carrott discloses historical comparison of breast tissue by image processing comprising the step of:

generating a temporal change image based upon the comparison (please note, to column 4, lines 33-53).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use generating a temporal change image as taught Carrott in the system of Taguchi because Carrott provides Taguchi an improved method and system which visually documents historical changes in a medical image by processing and

comparing historical with later images. A composite image is created which visually

emphasizes the temporal differences between historical images

Claim 38 is similarly analyzed as claim 24 above.

Claim 39 is similarly analyzed as claim 28 above.

Other Prior Art Cited

4.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Burke et al (U. S. 6,421,454 B1) disclose optical correlator assisted detection of

calcifications for breast biopsy.

Roehring et al (U. S. 6,075,879) disclose method and system for computer-

aided lesion detection using information from multiple images.

Doi et al (U. S. 6,836,558 B2) disclose method, system and computer readable

medium for identifying chest radiographs using image mapping and template matching

techniques.

Contact Information

5.   Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is

(571) 272-7458.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to

7:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the

Examiner's supervisor, Bhavesh Mehta, can be reached at (571) 272-7453. The fax

phone number for organization where this application or proceeding is assigned is (571)

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Abolfazl Tabatabai

Patent Examiner

Technology Division 2624

September 27, 2007

A- Tabatabai